



Prevalence of nocturia after brain injury: a cross-sectional study in a single rehabilitation center

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ABSTRACT

Aim: to analyze the prevalence of nocturia and its possible neuro-urological correlations in patients with a history of acquired brain injury (ABI).

Methods: a single-centre population-based prospective study involving outpatients who were previously admitted to our Rehabilitation Hospital for acute ABI ≥ 18 months and ≤ 2 years prior. Impact of nocturia on QoL was evaluated by the standardized International Consultation on Incontinence Nocturia Quality of Life (ICIQ N-QoL). All participants were given a three-day frequency chart. Probability value <0.05 was statistically significant.

Results: 48/138 subjects (35%) showed nocturia at 2-year follow-up visit. No, significant differences in age, gender, duration of coma, state of consciousness, disability, cognitive impairment and stroke severity were found in patients with or without nocturia. Subarachnoid haemorrhage (ESA) was the main reason for ABI in subjects showing nocturia ($p = .037$). The overall ICIQ N-QoL score ranged from 12 to 50 (mean 30.12 ± 8.87). Of them, 75% showed a total score >26 . Increased diurnal frequency and small bladder capacity was statistically significantly associated with nocturia ($p < .05$).

Conclusions: the rate of nocturia 2 years following ABI was lower compared to other neurological populations, although it was significantly associated with other storage urinary symptoms.

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Introduction

Acquired Brain Injury (ABI) may be secondary to a vascular, anoxic or neoplastic injury and is characterized by the onset of the coma of variable duration (Glasgow Coma Scale ≤ 8) and resulting motor, sensory and cognitive impairment. From an epidemiological point of view, data regarding incidence and prevalence is often underestimated (1,2). Furthermore, knowledge regarding urinary symptoms following ABI is even more unexplored. As a matter of fact, brain degeneration, including that caused by ABI often leads to lower urinary tract dysfunctions (LUTD) such as neurogenic detrusor overactivity with or without unbalanced voiding which may persist after the cerebrovascular accident. Specifically, Giannantoni et al. found a significant correlation between urinary incontinence secondary to neurogenic detrusor overactivity and traumatic ABI of the right hemisphere, whereas left hemisphere injuries were more associated with voiding dysfunctions (3). According to Sakakaribara et al., the incidence of LUTD after brain lesion ranges from 14% to 53% and is mostly detrusor overactivity especially if the frontal cortex is involved (4).

Considering lower urinary tract symptoms (LUTS), nocturia in supra-pontine lesions has been reported by several authors as one of the most common LUTS-related complaints either alone or associated with other bladder storage symptoms (5,6).

Despite its underlying neurological condition, most often the cause of nocturia is multifactorial and it may also manifest as a result of reduced functional bladder capacity or nocturnal polyuria (NP). Regarding this last aspect, it is well known that excessive urine production during the night may be influenced by many comorbidities such as congestive cardiopathy, obstructive sleep apnea (OSA), renal failure, as well as metabolic dysfunctions (e.g. diabetes). Moreover, several drug treatments may negatively impact nocturia, urinary frequency and/or polyuria (7,8).

Thus, following the acute phase, it is highly recommended to assess both hormonal status and the neuroendocrine system as possible causes of LUTS in patients with ABI.

Data regarding the prevalence of nocturia post-ABI are lacking; however, the consequences should be considered extremely important, though, as these patients have motor problems and therefore are at risk for nocturnal falls, re-hospitalizations and, in some cases, fatal complications (9).

Moreover, the impact of nocturia on QoL in these patients may also cause loss of functional independence and the ability to have an enjoyable social and physical life even years after ABI (10).

The aim of the current study was to analyze the prevalence of nocturia and its possible neuro-urological predictive factors at 2 years after brain injury in a population-based prospective study.